Amendments to the Specification

In the following, the paragraph numbers refer to the paragraph numbers in the application as published, which do not correspond to the numbering in the application as filed.

Please replace paragraph [0022] with the following amended paragraph:

> [0022] Fig. 3 (prior art) is a view showing how portions of the prior Kurelek patents are useful for tree limbing where the knuckle boom pulls the tree through a limbing head with efficient action but without a high available force.

Please replace paragraph [0023] with the following amended paragraph:

> [0023] Fig. 3B (prior art) shows details of the hydraulic connections used in Fig. 3.

Please replace paragraph [0032] with the following amended paragraph:

> [0032] Fig. 2 (prior art) shows the common prior art in the industry for using an almost fully capable loader machine to also do pull-type limbing. The carrier **3** in this drawing has a conventional prior art knuckle boom comprising of hoist boom **6**, stick boom **7**, hoist cylinder **10**, stick cylinder **11** and a grapple **18**. Beside the loader there is a limber chassis **83** on which is mounted a limbing head **81**. The loader grapple is used to place the tree bole butt in the limbing head at position **87** and with the limber arms closed on it the loader pulls the tree, using reach tuck and some swing to remove limbs. The saw **80** can be used to buck off a log, which can be piled or loaded before reaching out to position **87** again for another limbing pull. Although this is a practical way to use a conventional loader it still retains the faults which the prior Kurelek patents avoided, namely the operator must use two levers to do reach, unnecessary oil heat is generated, fuel and power is wasted and the reach is not fast. Before examining how the present new invention allows the application of those benefits to this pull type of loader limbing it

would be helpful to study the following description of those previous teachings with reference to Figs. 3 and 3B (both prior art).

Please replace paragraph [0033] with the following amended paragraph:

[0033] Figs. 3 and 3B (both prior art) show the portions of the embodiment of the prior Kurelek patents that are pertinent to the new invention, for pull-type loader limbing. There is an upper machine **3**, a machine base **1** supported above suitable tracks or wheels **2**. A diesel engine **4** is cantilevered on the back of the machine base. The knuckle boom assembly comprises a hoist boom **6**, and a stick boom **7**. The hoist boom is pivotally mounted relative to the machine base at a hoist-base pivot pin **8** on a mounting bracket **9** secured to the machine base. The stick boom is pivotally connected to the distal end of the hoist boom at a hoist-stick pivot pin **15**. The hoist boom is actuated by at least one hydraulic hoist cylinder **10** connected between the machine base and the hoist boom, at an effective angle relative to the hoist boom. The stick boom is actuated by at least one stick cylinder **11** connected between the hoist boom and the stick boom, at an effective angle relative to the stick boom. A reach cylinder **16** is also connected between the hoist boom and the stick boom, at an effective angle relative to the stick boom. A tool, such as a tree grapple, is carried at **13** at the distal end of the stick boom.

Please replace paragraph [0034] with the following amended paragraph:

[0034] The simplified schematic superimposed on Fig. 3B (prior art) shows how the hydraulic connections are made to reduce reach energy consumption with an embodiment of the prior Kurelek patents. The lift directional control valve **27** is controlled by the operator with lever **26**. Conduits **108** and **114** connect the base end ports of both the hoist cylinder and the stick cylinder to one of the work ports of valve **27**. Conduits **107** and **113** connect the rod end ports of both the hoist cylinder and the stick cylinder to the other work port of valve **27**. Conduit **114** in effect unites the base end volume of the hoist cylinder **10** with the base end volume of the stick cylinder **11**. That is, the hoist

cylinder and stick cylinder base ends are piped together and to a valve work port with hydraulic conduit, so that they share a common load-supporting pressurized volume or "slug" of oil behind their pistons.

Please replace paragraph [0038] with the following amended paragraph:

[0038] Fig. 3 (prior art) shows how this is applied to a limbing head **81** mounted on a chassis **83**. A grapple **18** is moved with reach action to the **87** location and then back with tuck to pull lengths of tree **82** through the limber and buck them off with the saw **80**. Thus the loader in Fig. 3 (prior art) fits into the job exactly the same as the loader of Fig. 2 but being of the energy efficient type is an improvement over the prior art of Fig. 2. However because the smaller rod end area of the reach cylinder is used to pull the tree in the direction of limb removal and the larger base end area is used to go back empty there is an opportunity for further improvement.

Please replace paragraph [0039] with the following amended paragraph:

[0039] In the present invention, as illustrated in Figs. 4 and 4B, there is an additional performance improvement in that the limbing force available with given equipment size is doubled and the empty return speed can also be doubled. Comparing Fig. 4B with Fig. 3B (prior art) the significant difference that causes the improvement is that the reach cylinder **16** has been moved from beneath the booms where it was pinned to the hoist boom at pin **69** and to the stick boom at pin **68** to above the hoist boom where it is pinned at its base end to the hoist boom with pin ~~64~~ **71** and to an extension crank of the stick boom with pin **65**. In this position of the reach cylinder, extending it to cause pull at the grapple **18** is done by applying oil pressure to its base end which has approximately twice the area of the rod end used to pull the tree through the limber in Figs. 3 and 3B (both prior art).